REMARKS

The Examiner's careful review and examination of the subject application are noted and appreciated. Applicants have carefully reviewed the above-identified Office Action. Applicants submit that, in view of the amendments and clarifying remarks set forth herein, all bases of rejection have been overcome. Accordingly, Applicants respectfully request withdrawal of the pending rejections and allowance of the claims submitted.

1.   New and amended claims

Claims 1 and 4-8 have been amended. No new matter has been introduced in amended claim 1 as support can be found in original claim 1 and in page 6, paragraph 0064 of the original specification. No new matter has been introduced in amended claims 4-8 as these claims have been amended to maintain consistency with amended claim 1 and are supported by the original claims. No new matter has been introduced in amended claim 8 as support can be found in original claim 8 and in pages 4-5, paragraph 50 of the original specification.

New claims 20 and 21 have been added. No new matter has been introduced in the new claims. Support for new claim 20 can be found in page 6, paragraph 63 of the original specification. Support for new claim 21 can be found in page 6, paragraph 64 of the original specification.

2.   Rejection of Claim 1, under 35 U.S.C. § 102(b) as anticipated by Gollomp (U.S. 6,424,157)

Applicants' amended claim 1 claims a method that comprises "resetting the state of charge level of said battery to a second level when said ambient temperature falls below a first

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temperature." Gollomp does not set a state of charge based on **ambient** temperature, but instead "continuously comput(es) and update SoC as the result of recent and on-going discharge and charge experiences as corrected by ambient conditons." (column 3, lines 27 – 29) Gollomp uses these computations in a system for "real-time determination and notification to the vehicle use of battery SoC, engine start alert capability, battery reserve capacity and other factors." Thus, Gollomp only uses ambient temperature to calculate the state of charge and does not teach resetting a state of charge set point based on ambient temperature.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference" (MPEP 2131.) Since Gollomp does not disclose resetting a state of charge based on ambient temperature, Gollomp does not anticipate Applicant's amended claim 1.

Therefore, Applicants respectfully submit that amended claim 1 is not anticipated by Gollomp. Therefore, removal of the anticipation rejection is respectfully requested.

3.   **Rejection of claims under 35 USC 103(a) as being obvious over Gollomp (US 6,424,157) in view of Bito (US 2002/0003417)**

Claims 1-7:

Applicants' amended claim 1 requires **resetting** the state of charge of the battery based on the **ambient** temperature.

Applicants' claimed invention allows the batteries to have an adequate state of charge (thus, having adequate power) to perform certain tasks (such as starting the engine) during low ambient temperature conditions (see Applicants' specification page 6, paragraph 0064.) The claimed method also allows the batteries to have adequate charge capacity to perform certain

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tasks (such as charging by regenerative braking) during high ambient temperature conditions. Still further, the claimed invention, by having a lower state of charge at high temperatures, can increase battery life over previous methods.

Gollomp does not set a state of charge based on **ambient** temperature, but instead "continuously comput(es) and update SoC as the result of recent and on-going discharge and charge experiences as corrected by ambient conditons." (column 3, lines 27 – 29) Gollomp uses this system for "real-time determination and notification to the vehicle use of battery SoC, engine start alert capability, battery reserve capacity and other factors." Thus, Gollomp only uses ambient temperature to calculate the state of charge and does not teach resetting a state of charge set point based on ambient conditions.

Bito does not teach detecting an **ambient temperature** and setting a charge state based on **ambient temperature** as required by amended claim 1. In contrast, Bito teaches "the central value of state-of-charge control SoC is constant (for example) when the **battery temperature** ... T(n) is higher than a predetermined temperature, and is a value that increases with the decrease of **battery temperature** when T(n) is lower than a predetermined temperature" (see Bito, page 4, paragraph 0048, emphasis added.)

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations (MPEP 2143.)

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First, the cited combination does not teach or suggest all claim limitations. Specifically, setting a state of charge based on **ambient** temperature.

Second, there is no motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Gollomp teaches continuously monitoring ambient temperature and Bito teaches setting charge state based on battery temperature. However, the Examiner has not shown how it is obvious to combine these references. Specifically, the Examiner has not shown how these references can be combined to achieve Applicants' claimed method which utilizes ambient (not battery) temperature.

Typically, one of ordinary skill in the art would determine that battery temperature, not ambient temperature is most directly related to battery performance. Thus, one of ordinary skill in the art would choose to use battery temperature in a method for operating the battery. However, Applicants' invention would not work as intended if battery temperature was utilized in the method. Applicants' invention allows an operator to start a car during cold conditions (see Applicants' specification, paragraph 0064.) By monitoring ambient temperature and setting state of charge based of ambient temperature, the battery will maintain a high charge state during operation in cold ambient temperatures, even as the battery temperature increases. Therefore, at the time when the vehicle's engine is shutdown, the battery's state of charge will be based on ambient (not battery) temperature and if the ambient temperature is low the battery's state of charge will be high. The battery will maintain this state of charge until subsequent restarting of the vehicle. Thus, at low ambient temperatures, the battery's state of charge will be sufficient to start the engine.

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In contrast, by monitoring battery temperature as described in Bito, as the battery heats up to operating temperatures, the battery's state of charge will decrease with rising temperature according to the values of the graph on Figure 3 of Bito. Thus, when the vehicle is shutdown, the battery will maintain this low state of charge until subsequent restarting is desired. A subsequent charging process (as described in Bito) will be required before an adequate state of charge for starting the engine at low ambient temperatures is reached.

Therefore, there is no motivation in the cited references or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to operate a nickel metal hydride battery based on ambient temperatures as taught by Applicants.

For the reasons stated above, Applicants' amended claim 1 and claims 2-7 are nonobvious over the cited combination. Thus, reconsideration and removal of the obviousness rejection is respectfully requested.

Claims 8-10, 12,13:

The cited combination does not teach or suggest all claim limitations of amended claim 8. Specifically, the cited combination does not teach or suggest converting chemical energy to thermal energy and subsequently electrically coupling the battery to a load.

Further, as discussed above, there is no motivation in the cited references or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine Gollomp and Bito to utilize ambient temperature as taught by Applicants.

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Thus, Applicants' amended claim 8 and claims 9, 10, 12, and 13 are nonobvious over the cited combination. Therefore, reconsideration and removal of the obviousness rejection is respectfully requested.

4.   **Rejection of Claims 11 and 14 under 35 U.S.C. 103(a) as being patentable over Gollomp (US 6,424,157) and Bito (US 2002/0003417), as applied to the claims above, and further in view of Young (US 6,392,388)**
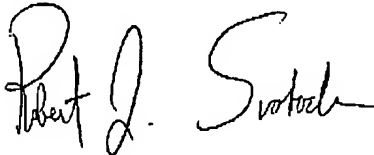
The Examiner cites Young as teaching that "the discharging step is carried out by applying a short circuit across said battery for a finite period of time." The teachings of Young do not rectify the lack of obviousness of claim 8 over Gollomp and Bito as described in Section 3 above. Since claims 11 and 14 are dependent on claim 8 and claim 8 is nonobvious over the cited combination, claims 11 and 14 are nonobvious over the cited combination. Therefore, removal of the obviousness rejection is respectfully requested.

5.   **Rejection of Claims 15 - 19 under 103(a) as being anticipated over Young (US 6,392,388) in view of Gollomp (US 6,424,157)**

The rejection of claims 15-19 is moot in light of Applicants' cancellation of the claims. Therefore, removal of the obviousness rejection is respectfully requested.

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Applicants respectfully request withdrawal of all outstanding rejections and respectfully submits that the application stands in condition for allowance. If the Examiner has any questions or suggestions regarding this amendment, the Examiner is respectfully asked to contact Applicant's representative at the telephone number or email address listed below.

Respectfully submitted,

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